

Tomorrow is not always a day away

How are the meaning of linguistic expressions affected by context? The meaning of some expressions are influenced freely by the discourse context; for instance, the anaphoric expression *the next day* allows any salient time in the discourse context as its reference time. On the other hand, so-called strict indexicals are not affected by the preceding discourse or grammatical context; the meaning of *I* in English is strictly determined by the speaker [5]. In addition, recent cross-linguistic work has uncovered a rich middle ground of restricted context-sensitive expressions [7]. Some are sensitive to pragmatic context shifts: *come*, for instance, describes motion relative to a perspective that is pragmatically determined from a small set of possible perspectives [1]. Others are sensitive to grammatical context shifts: some languages contain 'shifty indexicals' that can be interpreted relative to an attitude holder's context only when embedded under speech or attitude verbs [8, 2, 3]. This work explores the context-sensitivity of one expression in English: *tomorrow*.

English *tomorrow* has long been considered a strict indexical [5], even as other expressions once considered strictly speaker-oriented, such as appositives, have been shown to be context-sensitive [4]. This paper presents data showing *tomorrow* can also be interpreted relative to a shifted context and thus is not a strict indexical; and suggests two alternative analyses of *tomorrow*.

We evaluated American English speakers' acceptability of context-shifted *tomorrow* under speech verbs through a comic-captioning task on Mechanical Turk. Participants (n=72) were presented with a 3-panel comic strip and a sentence containing a temporal adverbial (Fig. 1), and were asked to rate the accuracy of the sentence as a caption for third panel on a 7-point Likert scale (where 7 indicates perfect acceptability).

Participants saw 5 items in each of 4 conditions: a bad baseline that used the day-of-week name of the first panel (always false); a good baseline that used the day-of-week name of the second panel (always true); an anaphoric condition using *the next day*; and the critical condition, *tomorrow*. Both the *next day* and the *tomorrow* condition contain context-shifted interpretations; high ratings in these conditions indicate the degree to which participants are able to interpret the temporal adverbials relative to the context of Panel 1, rather than strictly relative to the utterance context (Panel 3). Ratings of context-shifted *the next day* were predicted to be high, since it is anaphoric.

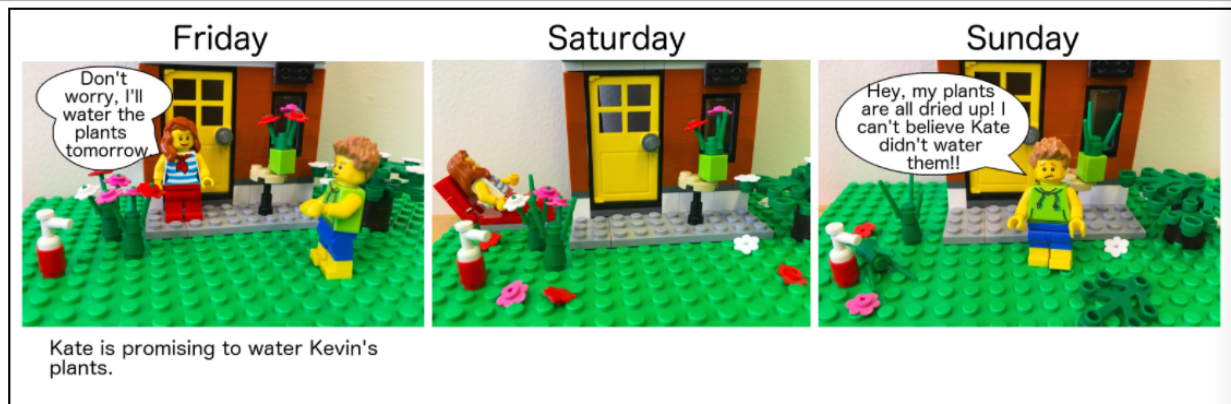
Our results show that participants rate context-shifted *tomorrow* much higher than the bad baseline, but somewhat lower than the good baseline and *the next day* (Fig. 2). T-tests on the z-transformed scores show significant differences between ratings of *tomorrow* and the bad baseline (Day 1) ($p < 0.0001$) and between *tomorrow* and *the next day* ($p < 0.0001$), showing that participants accept shifted readings of *tomorrow*, but to a lesser degree than *the next day*.

This work suggests that *tomorrow* is more context-sensitive than previously thought, and opens the door to several hypotheses about the nature of shifted *tomorrow*: that it is (1) a widely context-sensitive anaphoric expression; (2) a grammatically context-sensitive shifty indexical; or (3) context-sensitive to a pragmatically determined perspective, like *come*.

We tested the first possibility in a post-experiment debriefing by having participants rate instances of quantificationally bound *tomorrow* and *the next day* (Fig. 3). Anaphoric expressions are so freely context-sensitive that they can anchor to quantificationally introduced items, unlike indexicals (strict or not). Speakers rated the bound *tomorrow* cases as ungrammatical, while accepting quantificationally bound *the next day* (1.90 to 6.76), suggesting that the first possibility is not viable.

Further work is necessary in order to evaluate possibilities (2) and (3) as analyses of *tomorrow*. Harris & Potts found that appositives were sensitive to the discourse context (possibility (3)), rather than the grammatical context (possibility (2)) by manipulating the presence or absence of an attitude verb; similar work on *tomorrow* would provide evidence to decide between the two possible analyses. In addition, the fact that shifted readings of *tomorrow* were not rated as highly as *the next day* may provide further evidence of a processing cost associated with perspective shift like that reported in [6], since both analyses involve perspective shift.

Figure 1: Example stimulus



Caption: Kevin is angry because Kate said that she would water his plants $\left. \begin{array}{l} \text{tomorrow} \\ \text{the next day} \\ \text{Friday} \\ \text{Saturday} \end{array} \right\}$.

Figure 2: Participant means by condition

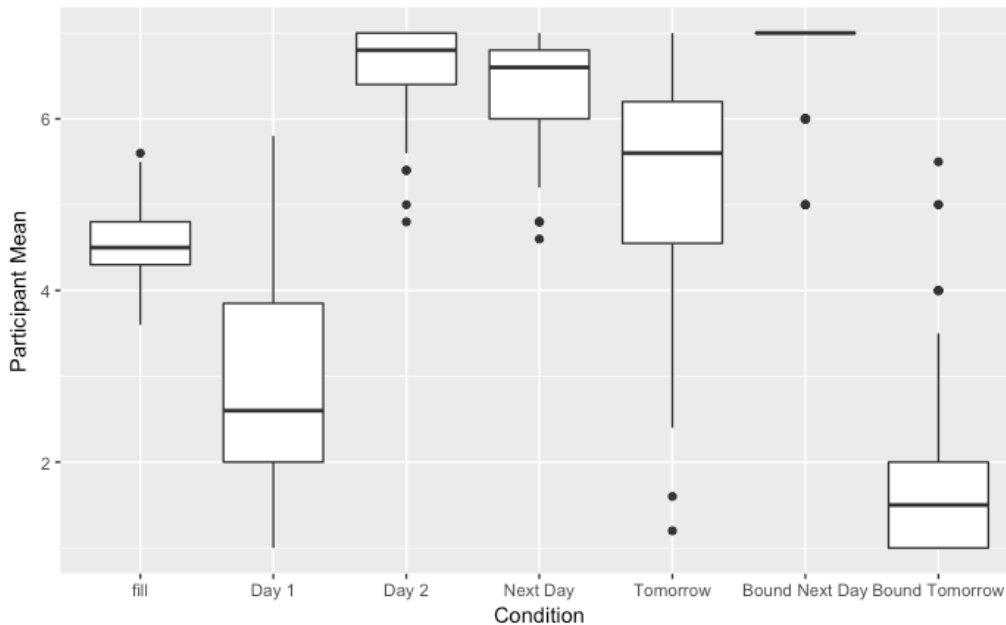


Figure 3: Example debriefing questions on quantificational binding

Tomorrow: Whenever I drink red wine, I oversleep tomorrow.

Next day: Every time I have a loud party, my neighbors are grumpy the next day.

References

[1] Barlow, J. (2015). *SuB*. [2] Anand, P., & A. Nevins. (2014). *SALT*. [3] Deal, A. R. (2014). *SULA*. [4] Harris, J., & Christopher Potts. (2009). *L&P*. [5] Kaplan, D. (1989). *Demonstratives*. [6] Köder, F., E. Maier & P. Hendriks. (2015). *L, C & N*. [7] Maier, E. (2017). Talk presented at ARISAS. [8] Schlenker, P. (2003). *L&P*.